

What is claimed is:

1 1. An apparatus for use in an application
2 including at least one of clamping and valving, the
3 apparatus comprising:

4 a support structure; and
5 actuator means for operating the support
6 structure between a rest position and an actuated
7 position.

1 2. The apparatus of claim 1 wherein the
2 actuator means is a piezoelectric device.

1 3. The apparatus of claim 2 wherein the
2 support structure is a single piece.

1 4. The apparatus of claim 2 wherein the
2 support structure is a mechanically active element of the
3 apparatus.

1 5. The apparatus of claim 2 wherein the support
2 structure includes opposing resilient arm
3 portions biased to the rest position.

1 6. The apparatus of claim 5 wherein the arm
2 portions are driven from the rest position to the
3 actuated position in response to actuation of the
4 actuator means.

1 7. The apparatus of claim 6 wherein the arm
2 portions are biased to return to the rest position from
3 the actuated position in response to deactuation of the
4 actuator means.

1 8. The apparatus of claim 2 wherein the
2 support structure is made from one or more materials.

1 9. The apparatus of claim 2 wherein the
2 support structure is made from at least two materials
3 bonded together.

1 10. The apparatus of claim 2 wherein the
2 actuator means produces a spatial displacement when
3 actuated and the support structure includes a pair of
4 opposing arms disposed relative to the actuator for
5 amplifying the spatial displacement.

1 11. In an apparatus for use in an application
2 including at least one of clamping and valving having a
3 support structure and piezoelectric actuator, the
4 improvement comprising:

5 the support structure being a single piece.

1 12. The improvement of claim 11 wherein the
2 support structure is a mechanically active element of the
3 apparatus.

1 13. The improvement of claim 11 wherein the
2 support structure includes opposing resilient arm
3 portions biased to a rest position.

1 14. The improvement of claim 13 wherein the
2 arm portions are driven from the rest position to an
3 actuated position in response to actuation of the
4 actuator.

1 15. The improvement of claim 14 wherein the
2 arm portions are biased to return to the rest position
3 from the actuated position in response to deactuation of
4 the actuator.

1 16. The improvement of claim 11 wherein the
2 support structure is made from one or more materials.

1 17. The improvement of claim 11 wherein the
2 support structure is made from at least two materials
3 bonded together.

1 18. The improvement of claim 11 wherein the
2 actuator produces a spatial displacement when actuated
3 and the support structure includes a pair of opposing
4 arms disposed relative to the actuator for amplifying the
5 spatial displacement.